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D - 44713 Bochum
Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

Besteller: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*
Customer:

Bestell-Nr.: *Lurgi Job - No.: 69690-10*
Order no.: *Lurgi OGC PO.-No.: 4567966-000/1.69690/136*

Project Name : *2nd Zagros Methanol Plant - Iran*

Auftrag-Nr.: *HH - 02538*
Job no.:

Lieferumfang / range:

Pos	Stck. pcs.	Gegenstand object	DN	PN	Werkstoff material	Bemerkung comment
00010	8	Absperrklappen FF Butterfly Valve FF	2"	Cl.150	Body: A536-65-45-12 Disc: B 148-C 954 Seat: EPDM	Valve Ident - No.: "A 201"

Auslegung + Prüfung nach *API 609 / API 598*
Design and tests acc. to

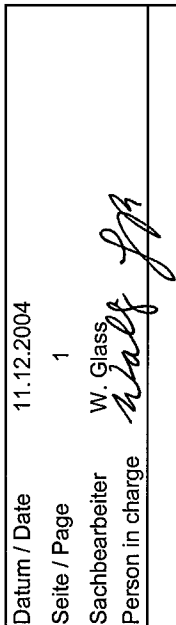
Sicht- und Funktionsprüfung: *o.k.*
visual and functional test:

Festigkeits-/Dichtheitsprüfung: *Festigkeit / shell test = 29,0 bar Wasser / water (60 sec)*
strength-/tightness-test: *Dichtheit Sitz / seat = 11,4 bar Wasser / water (60 sec)*

Prüfungsergebnis: *ohne Beanstandung !*
result: *no complaint !*

Bochum, den 11.12.2004 - WG **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: *Walter Glass*

Anlage: *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*



11.12.2004

Seite / Page 1

Sachbearbeiter
Person in charge

W. Glass,

W. Glass
W. Glass

Materialdokumentations - Deckblatt

Material Cover Sheet

**Kommissions-Nr. /
Reference No.**

HH-02538

Lurgi Job - No.: **69690-10**

Lurgi OGC PO,- No.: 4567966 - 000 / 1.69690 / 136

Project Name: 2nd Zagros Methanol Plant - Iran

[illegible]

WON IL FOUNDRY CO., LTD

(CERTIFICATE DATED 10204 / 2.2)

HEAD OFFICE & FACTORY 237-25 HAKJANG-DONG, SA SANG-KU,
PUSAN. KOREA TEL: (051) 322-2251 FAX: (051) 314-6803

Chemical Analysis and Mechanical Test Certificate of Materials for the Body

PART NAME : B.FLY V/V BODY
Materials : A536 GR 65-45-12
Reported to : KLAUS UNION

P.O No. : 1.69690-10
Report No. : W41011-1438
Date : 2004.10.11.

Description		Chemical Composition(%)							Remarks
Charge No.	Weight	C	Si	Mn	P	S	Mg		
		-	-	-	-	-	-		
W4J		3.56	2.63	0.22	0.031	0.003	0.041		
Y410		3.68	2.69	0.21	0.038	0.002	0.043		
B L A N K									

Item of Test Charge No.	SIZE (mm) DIAMETER	Tension Test				Bend Test	Hardness Test H _B H _R H _S	Impact Test C.I U.V kgm	Remarks
		Y.S	T.S	E.L	R/A				
		MPa	MPa	%	%				
		MIN 310	MIN 448	MIN 12					
W4J		333	479	16.8		-	-		
Y410		339	492	17.3					
B L A N K									

Charge No.	Item Name	Q'TY	Remarks
W4J	150LB 2" BODY	8 EA	A201 (00010)
W4J	150LB 6" BODY	4 EA	A201 (00020)
Y410	150LB 28" BODY	4 EA	A201G(00030)

Remarks :

This is certify that the article have been manufactured and test accordance with the requirements buyers.

Quality Control Department

Witnessed :

Walter JPB



Manager

S. Y. Kang

Reviewed by :

DAE HAN NONFERROUS.

4180-11, DAE JE-2DONG, KANG SE-KU, PUSAN, KOREA.

TEL : (051) 973-6913 FAX : (051) 973-7381

REPORT OF CHEMICAL & MATERIAL TEST

NAME OF ARTICLE(품명) : BUTTERFLY V/V DISC

PO NO.(공사번호) : 1.69690-10

MATERIAL (재질) : ASTM B148 C95400

REPORT NO.(보고서번호) : DH0410-19-019

CUSTOMER (발주처) : KLAUS UNION

DATE (날짜) : 2004. 10. 19.

Element원소		CHEMICAL COMPOSITION 화학성분 (%)								REMARK 비 고
Spec.(규격)		Cu	Al	Fe	Mn	Ni+CO				
CHARGE No. MARK	MIN.	83.0-	10.0	3.0-						
	MAX.		11.5	5.0	0.50	1.5				
DH7		83.78	10.66	4.53	0.24	0.70				
D		83.76	10.65	4.52	0.30	0.68				
		BLANK								

PROPERTY 특 성		TENSILE TEST (인 장 시 험)							BEND TEST 굴곡시험 90 ° 120 ° 120 °	HARDNESS TEST 경도시험 HB*	IMPACT TEST 충격시험 C . I U . V kg-m	REMARK 비 고
SPEC. 규 격		SIZE OF TEST PIECE 시험편 치수			Y . S (MPa) 내 력	T . S (MPa) 인장강도	E . L (%) 연신율	R/A (%) 단면 수축율				
CHARGE NO.	MIN.	DIA(mm) 직 경	GL(mm) 표점거리	S.A(mm ²) 단면적								
	MAX.											
DH7		12.6	50	126.7	310	620	6.0			190*		
D					348	702	16.9			194		
					348	702	16.9			195		
		BLANK										

REMARKS 비고 : ※ HARDNESS IS INFORMATION ONLY.

* DH7 : 28" DISC 4EA A201G(00030)

* DH7 : 6" DISC 4EA A201 (00020)

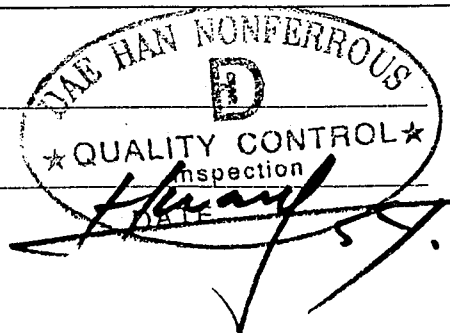
* D : 2" DISC 8EA A201 (00010)

TEST LABORATORY

TESTED BY

CHIEF ENGINEER

WITNESSED BY



CERTIFICATE OF THE SEAT MATERIAL

(CERTIFICATE : DIN EN 10204 / 2.2)

REPORT NO. : YSSR-041122-06

COMMODITY : RUBBER SEAT

MATERIALS : EPDM

DATE : 2004. 11. 22.

REPORT TO : KLAUS UNION ARMATUREN INTERNATIONAL.

TEST ITEM		SPEC	UNIT	TEST RESULT	TEST RULE
TENSION STRENGTH		50-200	kgf/cm ² (Min)	176	KSM 6613
ELONGATION		100-500	% (Min)	320	
TENSIL		5	% (Max)	4	
HARDNESS		65	Hs (Min)	69	
COMPESSION		7	% (Max)	3	
FATIGUE TEST	E.S.B CHANGE	±5	% (Max)	-2	
	E.B CHANGE	4	% (Max)	2.3	
	SPRING HARDNESS TEST	5	Hs (Max)	2	
OZON TEST				None	
			- BLANK -		

WITNESS BY :

Walter G/B



TESTED BY : C. W. KIM

YUSUNG RUBBER CO.,LTD.

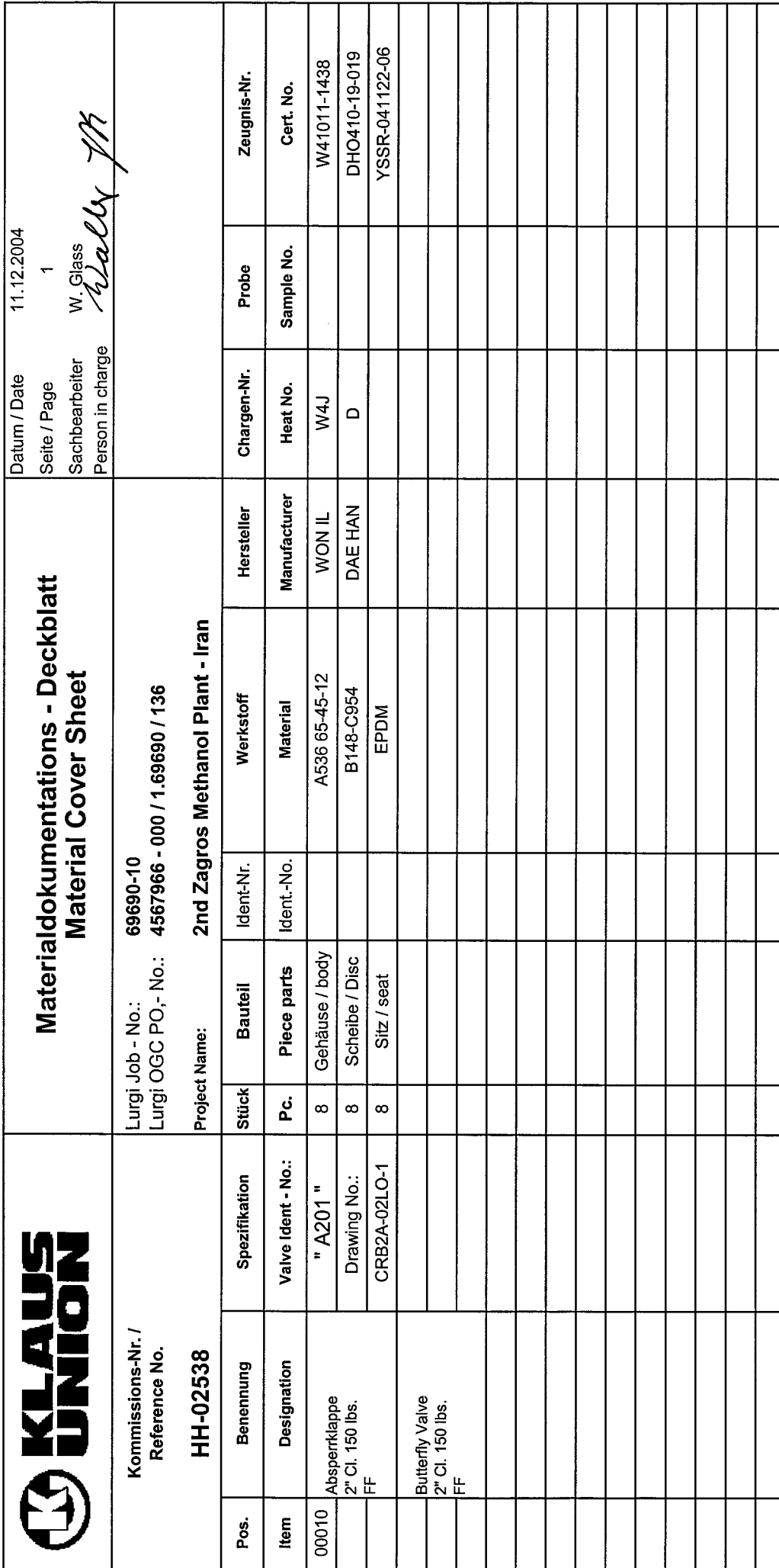
APPROVED BY : S. H. SONG

YUSUNG RUBBER CO.,LTD.

Abnahmeprüfzeugnis DIN EN 10204 - 3.1B
Inspection certificate**Besteller:** *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*
Customer:**Bestell-Nr.:** *Lurgi Job - No.: 69690-10*
Order no.: *Lurgi OGC PO.-No.: 4567966-000/1.69690/136***Project Name :** *2nd Zagros Methanol Plant - Iran***Auftrag-Nr.:** *HH - 02538*
Job no.:**Lieferumfang / range:**

Pos	Stck. pcs.	Gegenstand object	DN	PN	Werkstoff material	Bemerkung comment
00020	4	Absperrklappen FF Butterfly Valve FF	6"	Cl.150	Body: A536-65-45-12 Disc: B 148-C 954 Seat: EPDM	Valve Ident - No.: "A 201"

Auslegung + Prüfung nach *API 609 / API 598*
Design and tests acc. to**Sicht- und Funktionsprüfung:** *o.k.*
visual and functional test:**Festigkeits-/Dichtheitsprüfung:** *Festigkeit / shell test = 29,0 bar Wasser / water (60 sec)*
strength-/tightness-test: *Dichtheit Sitz / seat = 11,4 bar Wasser / water (60 sec)***Prüfungsergebnis:** *ohne Beanstandung !*
result: *no complaint !*Bochum, den 11.12.2004 - WG **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: *Walter Glass***Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*



WON IL FOUNDRY CO., LTD

(CERTIFICATE DIN EN 10204 2.2)

HEAD OFFICE & FACTORY 237-25 HAKJANG-DONG, SA SANG-KU,
PUSAN. KOREA TEL: (051) 322-2251 FAX: (051) 314-6803

Chemical Analysis and Mechanical Test Certificate of Materials for the Body

PART NAME : B.FLY V/V BODY
Materials : A536 GR 65-45-12
Reported to : KLAUS UNION

P.O No. : 1.69690-10
Report No. : W41011-1438
Date : 2004.10.11.

Description		Chemical Composition(%)							Remarks
Charge No.	Weight	C	Si	Mn	P	S	Mg		
		-	-	-	-	-	-		
W4J		3.56	2.63	0.22	0.031	0.003	0.041		
Y410		3.68	2.69	0.21	0.038	0.002	0.043		
B L A N K									

Item of Test Charge No.	SIZE (mm) DIAMETER	Tension Test				Bend Test	Hardness Test H _B H _R H _S	Impact Test C.I U.V kgm	Remarks
		Y.S	T.S	E.L	R/A				
		MPa	MPa	%	%				
		MIN 310	MIN 448	MIN 12					
W4J		333	479	16.8		-	-		
Y410		339	492	17.3					
B L A N K									

Charge No.	Item Name	Q'TY	Remarks
W4J	150LB 2" BODY	8 EA	A201 (00010)
W4J	150LB 6" BODY	4 EA	A201 (00020)
Y410	150LB 28" BODY	4 EA	A201G(00030)

Remarks :

This is certify that the article have been manufactured and test accordance with the requirements buyers.

Quality Control Department

Witnessed :

Walter JPB



Manager

S. Y. Kang

Reviewed by :

DAE HAN NONFERROUS.

4180-11, DAE JE-2DONG, KANG SE-KU, PUSAN, KOREA.

TEL : (051) 973-6913 FAX : (051) 973-7381

REPORT OF CHEMICAL & MATERIAL TEST

NAME OF ARTICLE(품명) : BUTTERFLY V/V DISC

PO NO.(공사번호) : 1.69690-10

MATERIAL (재질) : ASTM B148 C95400

REPORT NO.(보고서번호) : DH0410-19-019

CUSTOMER (발주처) : KLAUS UNION

DATE (날짜) : 2004. 10. 19.

Element원소		CHEMICAL COMPOSITION 화학성분 (%)								REMARK 비 고
Spec.(규격)		Cu	Al	Fe	Mn	Ni+CO				
CHARGE No. MARK	MIN.	83.0-	10.0	3.0-						
	MAX.		11.5	5.0	0.50	1.5				
DH7		83.78	10.66	4.53	0.24	0.70				
D		83.76	10.65	4.52	0.30	0.68				
		BLANK								

PROPERTY 특 성		TENSILE TEST (인 장 시 험)						BEND TEST	HARDNESS	IMPACT	REMARK 비 고
SPEC. 규 격		SIZE OF TEST PIECE 시험편 치수			Y . S (MPa) 내 력	T . S (MPa) 인장강도	E . L (%) 연신을 수축율	굴곡시험 90 ° 120 ° 120 °	TEST 경도시험 HB*	충격시험 C . I U . V kg-m	
CHARGE NO.	MIN.	12.6	50	126.7	310	620	6.0		190*		
	MAX.										
DH7					348	702	16.9		194		
D					348	702	16.9		195		
		BLANK									

REMARKS 비고 : ※ HARDNESS IS INFORMATION ONLY.

* DH7 : 28" DISC 4EA A201G(00030)

* DH7 : 6" DISC 4EA A201 (00020)

* D : 2" DISC 8EA A201 (00010)

TEST LABORATORY

TESTED BY

CHIEF ENGINEER

WITNESSED BY



CERTIFICATE OF THE SEAT MATERIAL

(CERTIFICATE : DIN EN 10204 / 2.2)

REPORT NO. : YSSR-041122-06

COMMODITY : RUBBER SEAT

MATERIALS : EPDM

DATE : 2004. 11. 22.

REPORT TO : KLAUS UNION ARMATUREN INTERNATIONAL.

TEST ITEM		SPEC	UNIT	TEST RESULT	TEST RULE
TENSION STRENGTH		50-200	kgf/cm ² (Min)	176	KSM 6613
ELONGATION		100-500	% (Min)	320	
TENSIL		5	% (Max)	4	
HARDNESS		65	Hs (Min)	69	
COMPESSION		7	% (Max)	3	
F A T I G U E T E S T	E.S.B CHANGE	±5	% (Max)	-2	
	E.B CHANGE	4	% (Max)	2.3	
	SPRING HARDNESS TEST	5	Hs (Max)	2	
OZON TEST				None	
			- BLANK -		

WITNESS BY :

Walter G/B



TESTED BY : C. W. KIM
YUSUNG RUBBER CO.,LTD.

APPROVED BY : S. H. SONG
YUSUNG RUBBER CO.,LTD.



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Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

Besteller: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*
Customer:

Bestell-Nr.: *Lurgi Job - No.: 69690-10*
Order no.: *Lurgi OGC PO.-No.: 4567966-000/1.69690/136*

Project Name : *2nd Zagros Methanol Plant - Iran*

Auftrag-Nr.: *HH - 02538*
Job no.:

Lieferumfang / range:

Pos	Stck. pcs.	Gegenstand object	DN	PN	Werkstoff material	Bemerkung comment
00030	4	Absperrklappen FF, mit Antrieb Butterfly Valve FF, gear operated	28"	Cl.150	Body: A536-65-45-12 Disc: B 148-C 954 Seat: EPDM	Valve Ident - No.: "A 201G"

Auslegung + Prüfung nach *API 609 / API 598*
Design and tests acc. to

Sicht- und Funktionsprüfung: *o.k.*
visual and functional test:

Festigkeits-/Dichtheitsprüfung: *Festigkeit / shell test = 29,0 bar Wasser / water (300 sec)*
strength-/tightness-test: *Dichtheit Sitz / seat = 11,4 bar Wasser / water (120 sec)*

Prüfungsergebnis: *ohne Beanstandung !*
result: *no complaint !*

Bochum, den 11.12.2004 - WG **KLAUS UNION GmbH & Co. KG**

Werksachverständiger:

Manufacturer's authorized inspector: *Walter Glass*

Anlage: *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*

WON IL FOUNDRY CO., LTD

(CERTIFICATE DIAMEN 10204 2.2)

HEAD OFFICE & FACTORY 237-25, HAKJANG-DONG, SA SANG-KU,

PUSAN. KOREA TEL: (051) 322-2251 FAX: (051) 314-6803

Chemical Analysis and Mechanical Test Certificate of Materials for the Body

PART NAME : B.FLY V/V BODY
Materials : A536 GR 65-45-12
Reported to : KLAUS UNION

P.O No. : 1.69690-10
Report No. : W41011-1438
Date : 2004.10.11.

Description		Chemical Composition(%)							Remarks
Charge No.	Weight	C	Si	Mn	P	S	Mg		
		-	-	-	-	-	-		
W4J		3.56	2.63	0.22	0.031	0.003	0.041		
Y410		3.68	2.69	0.21	0.038	0.002	0.043		
B L A N K									

Item of Test Charge No.	SIZE (mm) DIAMETER	Tension Test				Bend Test	Hardness Test H _B H _R H _S	Impact Test C.I U.V kgm	Remarks
		Y.S	T.S	E.L	R/A				
		MPa	MPa	%	%				
		MIN 310	MIN 448	MIN 12					
W4J		333	479	16.8		-	-		
Y410		339	492	17.3					
B L A N K									

Charge No.	Item Name	Q'TY	Remarks
W4J	150LB 2" BODY	8 EA	A201 (00010)
W4J	150LB 6" BODY	4 EA	A201 (00020)
Y410	150LB 28" BODY	4 EA	A201G(00030)

Remarks :

This is certify that the article have been manufactured and test accordance with the requirements buyers.

Quality Control Department

Witnessed :

Walter JPB



Manager

S. Y. Kang

Reviewed by :

DAE HAN NONFERROUS.

4180-11, DAE JE-2DONG, KANG SE-KU, PUSAN, KOREA.

THL : (051) 973-6913 FAX : (051) 973-7381

REPORT OF CHEMICAL & MATERIAL TEST

NAME OF ARTICLE(품명) : BUTTERFLY V/V DISC

PO NO.(공사번호) : 1.69690-10

MATERIAL (재질) : ASTM B148 C95400

REPORT NO.(보고서번호) : DH0410-19-019

CUSTOMER (발주처) : KLAUS UNION

DATE (날짜) : 2004. 10. 19.

Element원소		CHEMICAL COMPOSITION 화학성분 (%)								REMARK 비 고
Spec.(규격)		Cu	Al	Fe	Mn	Ni+CO				
CHARGE No. MARK	MIN.	83.0-	10.0	3.0-						
	MAX.		11.5	5.0	0.50	1.5				
DH7		83.78	10.66	4.53	0.24	0.70				
D		83.76	10.65	4.52	0.30	0.68				
		BLANK								

PROPERTY 특 성		TENSILE TEST (인 장 시 험)							BEND TEST	HARDNESS	IMPACT	REMARK 비 고
SPEC. 규 격		SIZE OF TEST PIECE 시험편 치수			Y . S (MPa) 내 력	T . S (MPa) 인장강도	E . L (%) 연신을	R/A (%) 단면 수축율	굴곡시험 90 ° 120 ° 120 °	TEST 경도시험 HB*	충격시험 C . I U . V kg-m	
CHARGE NO.	MIN.	12.6	50	126.7	310	620	6.0			190*		
	MAX.											
DH7					348	702	16.9			194		
D					348	702	16.9			195		
		BLANK										

REMARKS 비고 : ※ HARDNESS IS INFORMATION ONLY.

* DH7 : 28" DISC 4EA A201G(00030)

* DH7 : 6" DISC 4EA A201 (00020)

* D : 2" DISC 8EA A201 (00010)

TEST LABORATORY

TESTED BY

CHIEF ENGINEER

WITNESSED BY



CERTIFICATE OF THE SEAT MATERIAL

(CERTIFICATE : DIN EN 10204 / 2.2)

REPORT NO. : YSSR-041122-06

COMMODITY : RUBBER SEAT

MATERIALS : EPDM

DATE : 2004. 11. 22.

REPORT TO : KLAUS UNION ARMATUREN INTERNATIONAL.

TEST ITEM		SPEC	UNIT	TEST RESULT	TEST RULE
TENSION STRENGTH		50-200	kgf/cm ² (Min)	176	KSM 6613
ELONGATION		100-500	% (Min)	320	
TENSIL		5	% (Max)	4	
HARDNESS		65	Hs (Min)	69	
COMPESSION		7	% (Max)	3	
F A T I G U E T E S T	E.S.B CHANGE	±5	% (Max)	-2	
	E.B CHANGE	4	% (Max)	2.3	
	SPRING HARDNESS TEST	5	Hs (Max)	2	
OZON TEST				None	
			- BLANK -		

WITNESS BY :

Walter SP



TESTED BY

: C. W. KIM

YUSUNG RUBBER CO.,LTD.

APPROVED BY : S. H. SONG

YUSUNG RUBBER CO.,LTD.



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Inspection certificate

Besteller: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*
Customer:

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Project Name : *2nd Zagros Methanol Plant - Iran*

Auftrag-Nr.: *HH - 02538*
Job no.:

Lieferumfang / range:

Pos	Stck. pcs.	Gegenstand object	DN	PN	Werkstoff material	Bemerkung comment
00040	8	Absperrklappen RF, mit Antrieb Butterfly Valve RF, gear operated	6"	Cl.150	Body: A216-WCB Disc: A 351-CF8 Seat: RPTFE	Valve Ident – No.: "A 310G"

Auslegung + Prüfung nach *API 609 / API 598*
Design and tests acc. to

Sicht- und Funktionsprüfung: *o.k.*
visual and functional test:

Festigkeits-/Dichtheitsprüfung: *Festigkeit / shell test = 31,0 bar Wasser / water (60 sec)*
strength-/tightness-test: *Dichtheit Sitz / seat = 11,4 bar Wasser / water (60 sec)*

Prüfungsergebnis: *ohne Beanstandung !*
result: *no complaint !*

Bochum, den 11.12.2004 - WG **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: *Walter Glass*

Anlage: *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*



Datum / Date	11.12.2004
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1

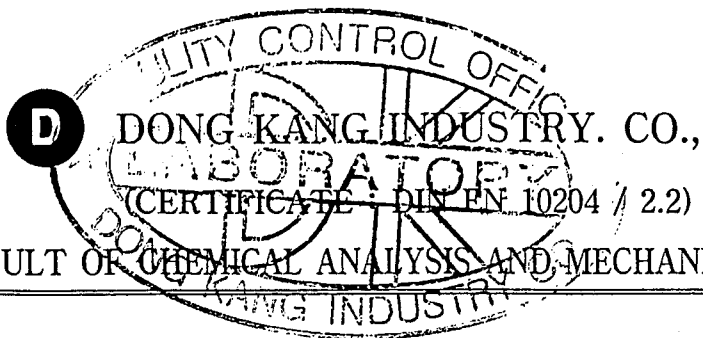
W. Glass

Class Zaidy JPS

Lurgi OGC PO,- No.: 4567966 - 000 / 1.69690 / 136

Project Name: 2nd Zagros Methanol Plant - Iran

[illegible]



RESULT OF CHEMICAL ANALYSIS AND MECHANICAL TEST

PURCHASER : KLAUS UNION
 PRODUCT : VALVE BODY
 W(M)/O NO. : N/A
 MATERIAL : ASTM A216-WCB

REPORT NO. : DKT-2004-10-08-1019A
 P.O.(R) NO. : 1.69690-10
 DATE : 2004. 10. 08.

CHEMICAL COMPOSITION OF LADLE SAMPLES(%)											HEAT TREATMENT
SPECIFIED VALUE	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	
CHARGE NO.	MAX 0.30	MAX 0.60	MAX 1.00	MAX 0.040	MAX 0.045	MAX 0.50	MAX 0.50	MAX 0.20	MAX 0.30	MAX 0.03	NORMALIZING
D108	0.21	0.38	0.61	0.025	0.018	0.15	0.25	0.10	0.09	0.010	PROCESS
D103	0.20	0.35	0.55	0.023	0.018	0.23	0.23	0.10	0.13	0.008	A.C

MECHANICAL PROPERTIES															
KIND		TENSION						IMPACT				HARD'S		BEND	REMARK
SPECIFIED VALUE CHARGE NO	SPECIMEN			Y.S	T.S	EL	R.A	CVN/CUN/				H _B		DEG	
	DIAM WIDT -H mm	G.L. mm	S.A. mm ²	MPa		%		Kgf.m/ J /				H _s	H _r		
				MIN	485- 655	MIN	MIN	AT °C							
	12.7	50.0	126.6	250	655	22	35	1	2	3	AVG				
D108	12.7	50.0	126.6	315	583	30	44								
D103				312	580	32	46								

CHARGE NO	ITEM & SIZE	Q'TY	REMARK
D108	150LB 6" BODY	8 EA	A310G (00040)
D108	150LB 8" BODY	2 EA	A310G (00050)
D103	150LB 12" BODY	4 EA	A310G (00060)

REMARK :

We here-by certify that the material described here in has been made and tested satisfactorily as above in accordance with the Requirements of the rules and Specifications.

WITNESSED BY

Leengtac
 CHIEF OF Q.C SEC.

Wally SR



PURCHASER : KLAUS UNION
 PRODUCT : VALVE DISC
 W(M)/O NO. : N/A
 MATERIAL : ASTM A351-CF8

REPORT NO. : DKT-2004-10-28-1028A
 P.O.(R) NO. : 1.69690-10
 DATE : 2004. 10. 28.

CHEMICAL COMPOSITION OF LADLE SAMPLES(%)											HEAT TREATMENT
SPECIFIED VALUE	C	Si	Mn	P	S	Ni	Cr	Mo			
	MAX	MAX	MAX	MAX	MAX	8.0-	18.0-	MAX			
CHARGE NO.	0.08	2.00	1.50	0.040	0.040	11.0	21.0	0.5			SOLUTION TREATMENT
06C02	0.058	1.05	0.98	0.021	0.022	9.82	19.51	0.31			PROCESS
D8	0.060	0.98	0.95	0.022	0.023	9.88	19.55	0.28			W.C
D51	0.051	0.95	0.90	0.023	0.021	9.59	19.34	0.30			

MECHANICAL PROPERTIES															
KIND		TENSION						IMPACT				HARD'S		BEND	REMARK
SPECIFIED VALUE CHARGE NO	SPECIMEN			Y.P	T.S	EL	R.A	CVN/CUN/				H _B		DEG	
	DIAM WIDT -H mm	G.L. mm	S.A. mm ²	MPa		%		Kgf.m/ J /				H _s	H _R		
				MIN	MIN	MIN	-	AT °C							
				12.7	50.0	126.6	205	485	35.0	-	1	2	3	AVG	
06C02				302	508	43									
D8	12.7	50.0	126.6	307	509	42	-					-		-	
D51				301	500	46									

CHARGE NO	ITEM & SIZE	Q'TY	REMARK
06C02	6" DISC	8 EA	A310G (00040)
D8	8" DISC	2 EA	A310G (00050)
D51	12" DISC	4 EA	A310G (00060)

REMARK :

We here-by certify that the material described here in has been made and tested satisfactorily as above in accordance with the Requirements of the rules and Specifications.

WITNESSED BY

Leengtac

CHIEF OF Q.C SEC.

Walla SP3 



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Blumenfeldstr. 18
D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

Besteller: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*
Customer:

Bestell-Nr.: *Lurgi Job - No.: 69690-10*
Order no.: *Lurgi OGC PO.-No.: 4567966-000/1.69690/136*

Project Name : *2nd Zagros Methanol Plant - Iran*

Auftrag-Nr.: *HH - 02538*
Job no.:

Lieferumfang / range:

Pos	Stck. pcs.	Gegenstand object	DN	PN	Werkstoff material	Bemerkung comment
00050	2	Absperrklappen RF, mit Antrieb Butterfly Valve RF, gear operated	8"	Cl.150	Body: A216-WCB Disc: A 351-CF8 Seat: RPTFE	Valve Ident - No.: "A 310G"

Auslegung + Prüfung nach *API 609 / API 598*
Design and tests acc. to

Sicht- und Funktionsprüfung: *o.k.*
visual and functional test:

Festigkeits-/Dichtheitsprüfung: *Festigkeit / shell test = 31,0 bar Wasser / water (60 sec)*
strength-/tightness-test: *Dichtheit Sitz / seat = 11,4 bar Wasser / water (60 sec)*

Prüfungsergebnis: *ohne Beanstandung !*
result: *no complaint !*

Bochum, den 11.12.2004 - WG **KLAUS UNION GmbH & Co. KG**
Werksachverständiger:
Manufacturer's authorized inspector: *Walter Glass*

Anlage: *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*



Datum / Date	11.12.2004
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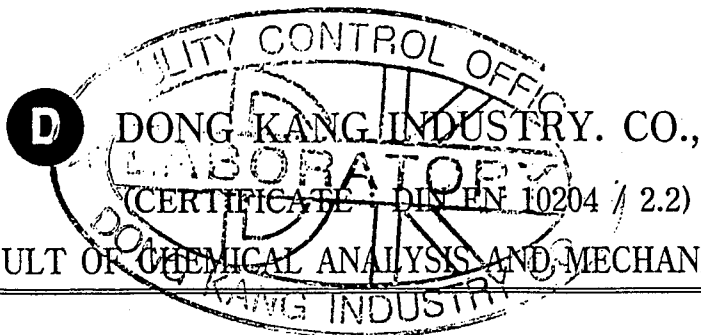
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W. Glass
Wally GB

Lurgi OGC PO,- No.: 4567966 - 000 / 1.69690 / 136

Project Name: 2nd Zagros Methanol Plant - Iran

[illegible]



RESULT OF CHEMICAL ANALYSIS AND MECHANICAL TEST

PURCHASER : KLAUS UNION
 PRODUCT : VALVE BODY
 W(M)/O NO. : N/A
 MATERIAL : ASTM A216-WCB

REPORT NO. : DKT-2004-10-08-1019A
 P.O.(R) NO. : 1.69690-10
 DATE : 2004. 10. 08.

CHEMICAL COMPOSITION OF LADLE SAMPLES(%)											HEAT TREATMENT
SPECIFIED VALUE	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	
	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	NORMALIZING
CHARGE NO.	0.30	0.60	1.00	0.040	0.045	0.50	0.50	0.20	0.30	0.03	
D108	0.21	0.38	0.61	0.025	0.018	0.15	0.25	0.10	0.09	0.010	PROCESS
D103	0.20	0.35	0.55	0.023	0.018	0.23	0.23	0.10	0.13	0.008	
											A.C

MECHANICAL PROPERTIES												REMARK
SPECIFIED VALUE	TENSION				IMPACT				HARD'S		BEND	
	SPECIMEN			Y.S	T.S	EL	R.A	CVN/CUN/		Hb	DEG	
CHARGE NO	DIAM	WIDT	G.L.	MPa		%		Kgf.m/ J /		Hs Hr	DEG	
	-H	mm	mm	MIN	485-	MIN	MIN	AT °C				
	12.7	50.0	126.6	250	655	22	35	1	2	3	AVG	
D108	12.7	50.0	126.6	315	583	30	44					-
D103	12.7	50.0	126.6	312	580	32	46					

CHARGE NO	ITEM & SIZE	Q'TY	REMARK
D108	150LB 6" BODY	8 EA	A310G (00040)
D108	150LB 8" BODY	2 EA	A310G (00050)
D103	150LB 12" BODY	4 EA	A310G (00060)

REMARK :

We here-by certify that the material described here in has been made and tested satisfactorily as above in accordance with the Requirements of the rules and Specifications.

WITNESSED BY

Leengtac
 CHIEF OF Q.C SEC.

Wally JR



RESULT OF CHEMICAL ANALYSIS AND MECHANICAL TEST

PURCHASER : KLAUS UNION
 PRODUCT : VALVE DISC
 W(M)/O NO. : N/A
 MATERIAL : ASTM A351-CF8

REPORT NO. : DKT-2004-10-28-1028A
 P.O.(R) NO. : 1.69690-10
 D A T E : 2004. 10. 28.

CHEMICAL COMPOSITION OF LADLE SAMPLES(%)											HEAT TREATMENT
CHARGE NO.	SPECIFIED VALUE	C	Si	Mn	P	S	Ni	Cr	Mo		
		MAX 0.08	MAX 2.00	MAX 1.50	MAX 0.040	MAX 0.040	8.0-11.0	18.0-21.0	MAX 0.5		SOLUTION TREATMENT
06C02		0.058	1.05	0.98	0.021	0.022	9.82	19.51	0.31		PROCESS W.C
D8		0.060	0.98	0.95	0.022	0.023	9.88	19.55	0.28		
D51		0.051	0.95	0.90	0.023	0.021	9.59	19.34	0.30		

MECHANICAL PROPERTIES															
KIND		TENSION						IMPACT				HARD'S		BEND	REMARK
SPECIFIED VALUE CHARGE NO	SPECIMEN			Y.P	T.S	EL	R.A	CVN/CUN/				H _B		DEG	
	DIAM WIDT -H mm	G.L. mm	S.A. mm ²	MPa		%		Kg _f .m/ J /				H _s	H _R		
				MIN	MIN	MIN	-	AT °C							
	12.7	50.0	126.6	205	485	35.0	-	1	2	3	AVG				
06C02				302	508	43									
D8	12.7	50.0	126.6	307	509	42	-					-	-		
D51				301	500	46									

CHARGE NO	ITEM & SIZE	Q'TY	REMARK
06C02	6" DISC	8 EA	A310G (00040)
D8	8" DISC	2 EA	A310G (00050)
D51	12" DISC	4 EA	A310G (00060)

REMARK :

We here-by certify that the material described here in has been made and tested satisfactorily as above in accordance with the Requirements of the rules and Specifications.

WITNESSED BY

Leengtac

CHIEF OF Q.C SEC.

Walter SP3



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D - 44795 Bochum

Telefon (0234) 4595 - 0
Telefax (0234) 43 23 87

Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

Besteller: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*
Customer:

Bestell-Nr.: *Lurgi Job - No.: 69690-10*
Order no.: *Lurgi OGC PO.-No.: 4567966-000/1.69690/136*

Project Name : *2nd Zagros Methanol Plant - Iran*

Auftrag-Nr.: *HH - 02538*
Job no.:

Lieferumfang / range:

Pos	Stck. pcs.	Gegenstand object	DN	PN	Werkstoff material	Bemerkung comment
00060	4	Absperrklappen RF, mit Antrieb Butterfly Valve RF, gear operated	12"	Cl.150	Body: A216-WCB Disc: A 351-CF8 Seat: RPTFE	Valve Ident - No.: "A 310G"

Auslegung + Prüfung nach *API 609 / API 598*
Design and tests acc. to

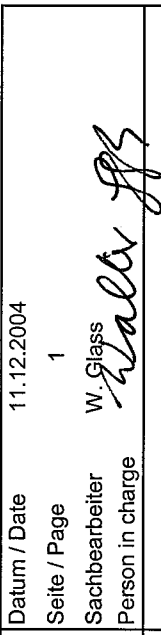
Sicht- und Funktionsprüfung: *o.k.*
visual and functional test:

Festigkeits-/Dichtheitsprüfung: *Festigkeit / shell test = 31,0 bar Wasser / water (60 sec)*
strength-/tightness-test: *Dichtheit Sitz / seat = 11,4 bar Wasser / water (60 sec)*

Prüfungsergebnis: *ohne Beanstandung !*
result: *no complaint !*

Bochum, den 11.12.2004 - WG **KLAUS UNION** GmbH & Co. KG
Werksachverständiger:
Manufacturer's authorized inspector: *Walter Glass*

Anlage: *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*



Materialdokumentations - Deckblatt

Material Cover Sheet

11.12.2004

Seite / Page 1

W. Glass

W. Glass

**Kommissions-Nr. /
Reference No.**

Lurgi Job - No.: **69690-10**

Lurgi Job - No.: 69690-10
Lurgi OGC PO,- No.: 4567966 - 000 / 1.69690 / 136

HH-02538

Project Name: 2nd Zagros Methanol Plant - Iran

[illegible]



RESULT OF CHEMICAL ANALYSIS AND MECHANICAL TEST

PURCHASER : KLAUS UNION
 PRODUCT : VALVE BODY
 W(M)/O NO. : N/A
 MATERIAL : ASTM A216-WCB

REPORT NO. : DKT-2004-10-08-1019A
 P.O.(R) NO. : 1.69690-10
 DATE : 2004. 10. 08.

CHEMICAL COMPOSITION OF LADLE SAMPLES(%)											
SPECIFIED VALUE	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	HEAT TREATMENT
	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	
CHARGE NO.	0.30	0.60	1.00	0.040	0.045	0.50	0.50	0.20	0.30	0.03	NORMALIZING
D108	0.21	0.38	0.61	0.025	0.018	0.15	0.25	0.10	0.09	0.010	PROCESS
D103	0.20	0.35	0.55	0.023	0.018	0.23	0.23	0.10	0.13	0.008	
											A.C

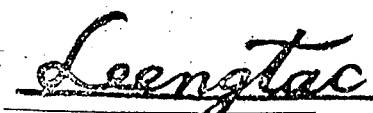
MECHANICAL PROPERTIES												
KIND	TENSION						IMPACT				HARD'S	
	SPECIMEN			Y.S	T.S	EL	R.A	CVN/CUN/				BEND
SPECIFIED VALUE	DIAM	WIDT	G.L.	S.A.	MPa		%				H _b	DEG
	-H	mm	mm	mm ²	MIN	485-	MIN	MIN	Kgf.m/ J /			
CHARGE NO	mm				250	655	22	35	AT °C			
	12.7	50.0	126.6						1	2	3	AVG
D108					315	583	30	44				
D103	12.7	50.0	126.6		312	580	32	46				

CHARGE NO	ITEM & SIZE	Q'TY	REMARK
D108	150LB 6" BODY	8 EA	A310G (00040)
D108	150LB 8" BODY	2 EA	A310G (00050)
D103	150LB 12" BODY	4 EA	A310G (00060)

REMARK :

We here-by certify that the material described here in has been made and tested satisfactorily as above in accordance with the Requirements of the rules and Specifications.

WITNESSED BY


 CHIEF OF Q.C SEC.





RESULT OF CHEMICAL ANALYSIS AND MECHANICAL TEST

PURCHASER : KLAUS UNION
 PRODUCT : VALVE DISC
 W(M)/O NO. : N/A
 MATERIAL : ASTM A351-CF8

REPORT NO. : DKT-2004-10-28-1028A
 P.O.(R) NO. : 1.69690-10
 DATE : 2004. 10. 28.

CHEMICAL COMPOSITION OF LADLE SAMPLES(%)										
CHARGE NO.	SPECIFIED VALUE	C	Si	Mn	P	S	Ni	Cr	Mo	HEAT TREATMENT
		MAX	MAX	MAX	MAX	MAX	8.0-11.0	18.0-21.0	MAX	
		0.08	2.00	1.50	0.040	0.040			0.5	
06C02		0.058	1.05	0.98	0.021	0.022	9.82	19.51	0.31	PROCESS
D8		0.060	0.98	0.95	0.022	0.023	9.88	19.55	0.28	
D51		0.051	0.95	0.90	0.023	0.021	9.59	19.34	0.30	
										W.C

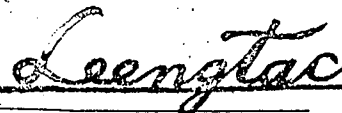
MECHANICAL PROPERTIES															
KIND		TENSION						IMPACT				HARD'S		BEND	REMARK
SPECIFIED VALUE CHARGE NO	SPECIMEN			Y.P	T.S	EL	R.A	CVN/CUN/				HB		DEG	
	DIAM WIDT -H mm	G.L. mm	S.A. mm'	MPa		%		Kgf.m/ J /				Hs	Hr		
				MIN	MIN	MIN	-	AT °C							
				12.7	50.0	126.6	205	485	35.0	-	1	2	3	AVG	
06C02				302	508	43									
D8	12.7	50.0	126.6	307	509	42	-					-		-	
D51				301	500	46									

CHARGE NO	ITEM & SIZE	Q'TY	REMARK
06C02	6" DISC	8 EA	A310G (00040)
D8	8" DISC	2 EA	A310G (00050)
D51	12" DISC	4 EA	A310G (00060)

REMARK :

We here-by certify that the material described here in has been made and tested satisfactorily as above in accordance with the Requirements of the rules and Specifications.

WITNESSED BY


 CHIEF OF Q.C SEC.

Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

Besteller: *Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*
Customer:

Bestell-Nr.: *Lurgi Job – No.: 69690-10*
Order no.: *Lurgi OGC PO.-No.: 4567966-000/1.69690/136*

Project Name : *2nd Zagros Methanol Plant - Iran*

Auftrag-Nr.: *HH - 02538*
Job no.:

Lieferumfang / range:

Pos	Stck. pcs.	Gegenstand object	DN	PN	Werkstoff material	Bemerkung comment
00070	1	Absperrklappen Double flanged mit Antrieb Butterfly Valve Double flanged gear operated	20"	Cl.300	Body: A351-CF8 Disc: A 351-CF8 Seat: SS+graphite	Valve Ident – No.: "A 651G"

Auslegung + Prüfung nach *API 609 / API 598*
Design and tests acc. to

Sicht- und Funktionsprüfung: *o.k.*
visual and functional test:

Festigkeits-/Dichtheitsprüfung: *Festigkeit / shell test = 75,9 bar Wasser / water (300 sec)*
strength-/tightness-test: *Dichtheit Sitz / seat = 55,2 bar Wasser / water (120 sec)*

Prüfungsergebnis: *ohne Beanstandung !*
result: *no complaint !*

Bochum, den 11.12.2004 - WG **KLAUS UNION** GmbH & Co. KG

Werksachverständiger:

Manufacturer's authorized inspector: *Walter Glass*

Anlage: *Dokumentation gemäß Material-Dokumentationsdeckblatt*
enclosure *Documentation acc. to material cover sheet*



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W. Glass & Co.

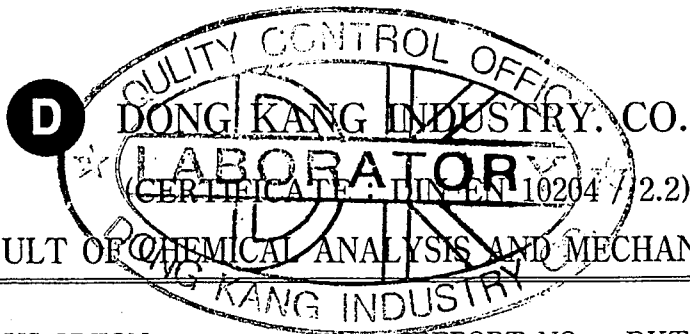
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W. Glass
Walf JB

Lurgi Job - No.: 69690-10
Lurgi OGC PO- No.: 4567966 - 000 / 1.69690 / 136

Project Name: 2nd Zagros Methanol Plant - Iran

[illegible]



RESULT OF CHEMICAL ANALYSIS AND MECHANICAL TEST

PURCHASER : KLAUS UNION
 PRODUCT : VALVE BODY & DISC
 W(M)/O NO. : N/A
 MATERIAL : ASTM A351-CF8C

REPORT NO. : DKT-2004-11-22-1025A
 P.O.(R) NO. : 1.69690-10
 DATE : 2004. 11. 22.

CHEMICAL COMPOSITION OF LADLE SAMPLES(%)											
SPECIFIED VALUE	C	Si	Mn	P	S	Ni	Cr	Mo			HEAT TREATMENT
CHARGE NO.	MAX 0.08	MAX 2.00	MAX 1.50	MAX 0.040	MAX 0.040	9.0- 12.0	18.0- 21.0	MAX 0.50			SOLUTION TREATMENT
D1122 D1118	0.067	0.81	0.90	0.014	0.017	11.02	18.58	0.28			
	0.056	0.65	0.69	0.026	0.015	10.72	18.52	0.33			W.C

MECHANICAL PROPERTIES															
KIND		TENSION						IMPACT				HARD'S		BEND	REMARK
SPECIFIED VALUE CHARGE NO	SPECIMEN			Y.P	T.S	EL.	R.A	CVN/CUN/				H _B		DEG	
	DIAM WIDT -H mm	G.L. mm	S.A. mm ²	MPa		%		Kgf.m/ J /				H _s	H _R		
				MIN	MIN	MIN	-	AT °C							
				12.7	50.0	126.6	205	485	30.0	-	1	2	3	AVG	
D1122 D1118	12.7	50.0	126.6	320 317	540 537	40 42	-					-	-	-	

CHARGE NO	ITEM NAME	Q'TY	REMARK
D1122	300LB 20" BODY	1 EA	A651G (00070)
D1118	300LB 20" DISC	1 EA	A651G (00070)

REMARK :

We here-by certify that the material described here in has been made and tested satisfactorily as above in accordance with the Requirements of the rules and Specifications.

WITNESSED BY



Walter S/B

CHIEF OF Q.C SEC.